Argonne NATIONAL LABORATORY

Feature

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Argonne Researcher named top-5 materials scientist of 2000s

Argonne scientist Yugang Sun has been recognized as the one of the five top materials scientists in the world over the past decade, according to a new ranking recently released by Thomson Reuters.
Sun garnered the fifth place in Thomson Reuters' ranking of the top 100 materials scientists of the past decade as measured by how frequently their papers were cited by their peers. Sun also was ranked number 61 in a similar list of the top 100 chemists in the world.

"It's a terrific honor to receive this kind of recognition," Sun said. "Everyone on this list has made major contributions to chemistry and materials science research, and I'm glad that I could do my part to advance the field to where it is today."

In the past 10 years, Sun led the invention of two unique processes for the creation of nanocrystals. The most famous, called the polyol process, which reacts a special class of alcohols with metal salts to create shaped nanoparticles of many different types of metals.

According to Sun, the methods that he used to create nanoparticles were so efficient and widely adopted that they caused a spike in demand for the special chemicals needed. "Once other scientists noticed that they could create nanoparticles so easily, it was almost like the California gold rush," he said.

Sun's interest in materials science emerged early during his studies as a high school student in China. One of his chemistry teachers took a particular liking to him, and worked with Sun after school and on weekends to foster his natural talents.

After graduating college, Sun wanted to continue his study at a pre-eminent graduate school in the United States, but he could not afford the expense. "I found it a lot more financially beneficial to complete my Ph.D. studies in China then look for a postdoctoral position in America," he said.

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Today, Sun devotes most of his time at Argonne's Center for Nanoscale Materials (CNM) to the study of the complex growth mechanisms of nanoparticle formation that underlie the well known chemistries in solution phase. "I am lucky to work at CNM," he said, "where easy access to these state-of-art facilities gives me the unique opportunity to develop new techniques for probing the mysteries behind nanoparticle growth. The more we know, the better we can control nanoparticle growth and tailor their properties for applications ranging from energy harvesting and conversion, photonics and optical sensing."

The Center for Nanoscale Materials at Argonne National Laboratory is one of the five DOE Nanoscale Science Research Centers (NSRCs), premier national user facilities for interdisciplinary research at the nanoscale, supported by the DOE Office of Science. Together the NSRCs comprise a suite of complementary facilities that provide researchers with state-of-the-art capabilities to fabricate, process, characterize and model nanoscale materials, and constitute the largest infrastructure investment of the National Nanotechnology Initiative. The NSRCs are located at DOE's Argonne, Brookhaven, Lawrence Berkeley, Oak Ridge and Sandia and Los Alamos national laboratories. For more information about the DOE NSRCs, please visit http://nano.energy.gov.

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